CLAIMS

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A stand alone welding power supply comprising;

a primary mover mechanically coupled to a rotating shaft;

a generator having a rotor mechanically coupled to the shaft, and further having a stator magnetically coupled to the rotor, whereby the generator provides a generator output;

an inverter having an inverter input in electrical communication with the generator output, wherein the inverter inverts power from the inverter input to provide an inverter output;

a controller coupled to the primary mover and having a feedback input; and

a feedback circuit coupled to the welding output and the feedback input wherein a feedback signal responsive to at least one welding output operating parameter is provided to the feedback input.

2. The power supply of claim 1 wherein the primary mover includes a speed control and the controller includes an output coupled to the speed control, wherein the speed of the primary mover is controlled in response to the feedback signal.

3. The power supply of claim 2 wherein the speed control includes an idle/run selector for selecting between an idle speed and a run speed in response to the feedback signal.

4. The power supply of claim 1 wherein the controller includes means for controlling at least one of a throttle position, a fuel pump, an injection timer, a fuel to air ratio, fuel consumption and ignition timing.

5. The power supply of claim 1 wherein the at least one operating parameter is welding current.

6. The power supply of claim 1 wherein the at least one operating parameter is welding voltage.

7. The power supply of claim 5 wherein the at least one operating parameter further includes welding voltage.

8. The power supply of claim 7 wherein the feedback circuit includes a multiplier, wherein the multiplier multiplies signals representative of voltage and current to obtain a signal representative of power, and further wherein the feedback circuit includes an integrator to integrate the signal representative of power.

9. The power supply of claim 2 further including a rectifier that couples the inverter to the ac output, and wherein the inverter includes at least one input energy storage device that stores rectified energy and wherein the controller causes the primary mover to increase speed when the energy stored decreases past a threshold.

10. The power supply of claim 1 wherein the operating parameter is a function of a ripple in the output.

11. The power supply of claim 1 further including a rectifier coupled to the inverter output to provide a dc welding output.

12. The power supply of claim 1 wherein the generator is a dc generator.

13. The power supply of claim 1 wherein the generator is an ac dc generator, and the inverter incudes an input rectifier.

14. A stand alone welding power supply comprising;

a primary mover mechanically coupled to a rotating shaft;

a generator having a rotor mechanically coupled to the shaft, and further having a stator magnetically coupled to the rotor, whereby the generator provides a generator output;

an inverter having an inverter input in electrical communication with the generator output, wherein the inverter inverts power from the inverter input to provide an inverter output;

control means, coupled to the primary mover and having a feedback input, for controlling the primary mover; and

feedback means, coupled to the welding output and the feedback input, for providing a feedback signal responsive to at least one welding output operating parameter to the feedback input.

15. The power supply of claim 14 wherein the primary mover speed control means for controlling the primary mover's speed, and the control means includes an output coupled to the speed control means, wherein the speed of the primary mover is controlled in response to the feedback signal.

16. The power supply of claim 15 wherein the speed control means includes an idle/run selector means for

selecting between an idle speed and a run speed in response to the feedback signal.

17. The power supply of claim 14 wherein the control means includes means for controlling at least one of a throttle position, a fuel pump, an injection timer, a fuel to air ratio, fuel consumption and ignition timing.

18. The power supply of claim 14 wherein the at least one operating parameter is welding current.

19. The power supply of claim 14 wherein the at least one operating parameter is welding voltage.

20. The power supply of claim 18 wherein the at least one operating parameter further includes welding voltage.

21. The power supply of claim 20 wherein the feedback means includes a multiplier means for multiplying signals representative of voltage and current to obtain a signal representative of power, and further wherein the feedback means includes an integrator means for integrating the signal representative of power.

22. The power supply of claim 15 wherein the inverter includes at least one input energy storage means for storing energy to be inverted by the inverter, and wherein the control means further includes means for increasing primary mover's speed when the energy stored decreases past a threshold.

23. The power supply of claim 14 wherein the operating parameter is a function of a ripple in the output.

24. The power supply of claim 14 further including a rectifier means coupled to the inverter output for providing a dc welding output.

25. The power supply of claim 14 wherein the generator is a dc generator.

26. The power supply of claim 14 wherein the generator is an ac dc generator and the inverter includes a rectifier.

27. A method of providing welding power comprising;

generating an electrical output with an engine and generator;

inverting the electrical input to provide an ac inverter output;

controlling the engine using feedback indicative of a welding output operating parameter.

28. The method of claim 27 wherein the engine speed is contfolled in response to the feedback.

29. The method of claim 28 wherein the step of controlling includes the step of selecting between an idle speed and a run speed in response to the feedback.

30. The method of claim 27 wherein the step of controlling includes controlling at least one of a throttle position, a fuel pump, an injection timer, a fuel to air ratio, fuel consumption and ignition timing.

31. The method of claim 28 including the step of providing feedback responsive to welding current.

32. The method of claim 28 including the step of providing feedback responsive to welding voltage.

33. The method of claim 28 including the step of providing feedback responsive to welding power.

34. The method of claim 33 wherein step of providing feedback further includes the steps of multiplying signals representative of voltage and current to obtain a signal representative of power, and integrating the signal representative of power.

35. The method of claim 28 further including the step of storing energy after rectification and wherein the step of controlling includes the step of increasing engine speed when the energy stored decreases past a threshold.

36. The method of claim 31 wherein the feedback is responsive to a ripple in the output.

37. The method of claim 31 further including the step of rectifying the inverter output to provide a dc welding output.

38. The method of claim 27 wherein the step of generating includes the step of generating a dc output.

39. The method of claim 27 wherein the step of generating includes the step of generating an ac dc output and the step of inverting includes the step of rectifying..